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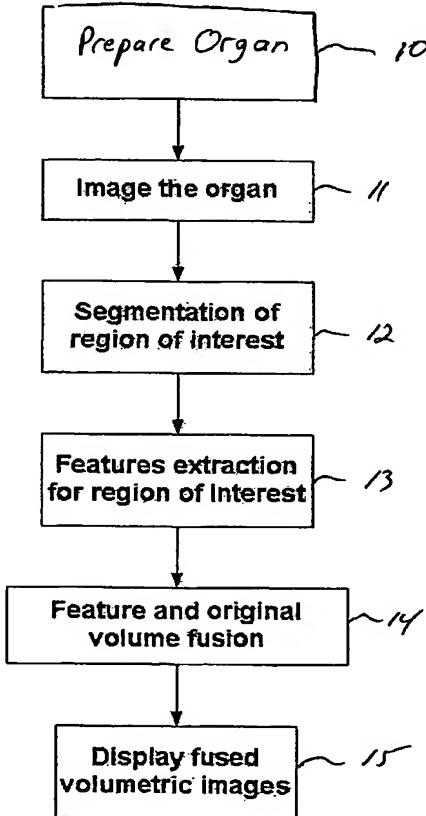
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(54) Title: VIRTUAL ENDOSCOPY METHODS AND SYSTEMS



(57) **Abstract:** Imaging systems and methods for processing and rendering volumetric images of a selected organ for virtual endoscopy applications are provided, which enable visualization and navigation of the imaged organ from within a lumen/cavity of the organ. For example, methods are provided for preparing 3D volumetric images of colons for virtual endoscopy application which do not require administration of oral laxatives or suppositories for patient bowel preparation. In particular, an imaging method which can be implemented for virtual colonoscopy applications, includes a process of obtaining an image dataset comprising image data of a colon (step 11) that is prepared (step 10) to tag regions of colonic residue in a manner that enhances a contrast between tagged regions of colonic residue in a lumen of the colon and a colon wall; segmenting (step 12) a region of interest in the image dataset, the region of interest comprising the colon lumen, the colon wall, and regions of tagged residue in the colon lumen; electronically cleaning (step 13) the tagged residue in the colon lumen using a gradient feature data obtained from the image dataset using a maximum directional gradient feature analysis; and rendering (step 14) a volumetric image comprising an endoluminal view at a region within the imaged colon.



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